



**PATENT**  
Docket No. 11746/46002

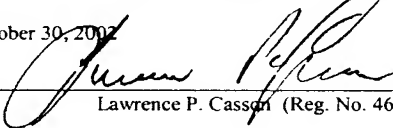
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor : **ROTHMAN, et al.**  
Serial No. : **10/053,498**  
Filing Date : **January 17 2002**  
For: : **HEAT SHOCK PROTEIN-BASED VACCINES  
AND IMMUNOTHERAPIES**  
Examiner : **To Be Assigned**  
Art Unit : **1642**

Commissioner for Patents  
Washington D.C. 20231  
BOX SEQUENCE

I hereby certify that this correspondence is being deposited with the  
United States Postal Service as first class mail in an envelope addressed  
to: Commissioner for Patents, Washington, D.C. 20231 on

Date October 30, 2002

Signature: 

Lawrence P. Casson (Reg. No. 46,606)

**SUBMISSION OF  
SEQUENCE LISTING STATEMENTS**

SIR:

**STATEMENT UNDER 37 CFR §1.821(f)**

I hereby state that the information recorded in computer readable form is identical to  
the written sequence listing.

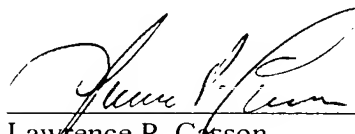
**STATEMENT UNDER 37 CFR §1.821(g)**

I hereby state that the submission, filed in accordance with 37 CFR 1.821(g), does not  
include new matter.

Respectfully submitted,  
KENYON & KENYON

Dated: October 30, 2002

By:

  
Lawrence P. Casson  
Reg. No. 46,606

One Broadway  
New York, NY 10004  
Direct Dial: 212-908-6204  
Fax: 212-425-5288



SEQUENCE LISTING

<110> Sloan-Kettering Institute for Cancer Research  
Rothman, James E.  
Mayhew, Mark  
Hoe, Mee H.  
Houghton, Alan  
Hartl, Ulrich  
Querfelli, Ouathek  
Moroi, Yoichi

<120> CONJUGATE HEAT SHOCK PROTEIN-BINDING PEPTIDES

<130> 11746/46002

<140> 10/053,498

<141> 2002-01-17

<150> 08/961,707

<151> 1997-10-31

<160> 321

<170> WordPerfect 8.0 for Windows

<210> 1

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 1

His Thr Thr Val Tyr Gly Ala Gly  
1 5

<210> 2

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 2

Thr Glu Thr Pro Tyr Pro Thr Gly  
1 5

<210> 3

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 3

Leu Thr Thr Pro Phe Ser Ser Gly  
1 5

<210> 4  
<211> 8  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 4  
  
Gly Val Pro Leu Thr Met Asp Gly  
1 5

<210> 5  
<211> 8  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 5  
  
Lys Leu Pro Thr Val Leu Arg Gly  
1 5

<210> 6  
<211> 8  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 6  
  
Cys Arg Phe His Gly Asn Arg Gly  
1 5

<210> 7  
<211> 8  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 7  
  
Tyr Thr Arg Asp Phe Glu Ala Gly  
1 5

<210> 8  
<211> 8  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 8  
  
Ser Ser Ala Ala Gly Pro Arg Gly  
1 5

<210> 9  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <400> 9  
  
 Ser Leu Ile Gln Tyr Ser Arg Gly  
 1 5

<210> 10  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (7)..(7)  
 <223> unknown

<400> 10  
  
 Asp Ala Leu Met Trp Pro Xaa Gly  
 1 5

<210> 11  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (3)..(3)  
 <223> unknown

<400> 11  
  
 Ser Ser Xaa Ser Leu Tyr Ile Gly  
 1 5

<210> 12  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <400> 12

Phe Asn Thr Ser Thr Arg Thr Gly  
 1 5

<210> 13  
 <211> 8

```

<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 13

Thr Val Gln His Val Ala Phe Gly
  1                      5

<210> 14
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 14

Asp Tyr Ser Phe Pro Pro Leu Gly
  1                      5

<210> 15
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 15

Val Gly Ser Met Glu Ser Leu Gly
  1                      5

<210> 16
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> unknown

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> unknown

<400> 16

Phe Xaa Pro Met Ile Xaa Ser Gly
  1                      5

<210> 17
<211> 8
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> peptide in m13 coliphage

<400> 17

Ala Pro Pro Arg Val Thr Met Gly
  1                      5

<210> 18
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 18

Ile Ala Thr Lys Thr Pro Lys Gly
  1                      5

<210> 19
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 19

Lys Pro Pro Leu Phe Gln Ile Gly
  1                      5

<210> 20
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 20

Tyr His Thr Ala His Asn Met Gly
  1                      5

<210> 21
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 21

Ser Tyr Ile Gln Ala Thr His Gly
  1                      5

<210> 22
<211> 8
<212> PRT
<213> Artificial Sequence

```

<220>  
<223> peptide in m13 coliphage  
<400> 22  
Ser Ser Phe Ala Thr Phe Leu Gly  
1 5

<210> 23  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 23

Thr Thr Pro Pro Asn Phe Ala Gly  
1 5

<210> 24  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 24

Ile Ser Leu Asp Pro Arg Met Gly  
1 5

<210> 25  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 25

Ser Leu Pro Leu Phe Gly Ala Gly  
1 5

<210> 26  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 26

Asn Leu Leu Lys Thr Thr Leu Gly  
1 5

<210> 27  
<211> 8  
<212> PRT  
<213> Artificial Sequence

```

<220>
<223> peptide in m13 coliphage

<400> 27

Asp Gln Asn Leu Pro Arg Arg Gly
 1             5

<210> 28
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 28

Ser His Phe Glu Gln Leu Leu Gly
 1             5

<210> 29
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 29

Thr Pro Gln Leu His His Gly Gly
 1             5

<210> 30
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 30

Ala Pro Leu Asp Arg Ile Thr Gly
 1             5

<210> 31
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 31

Phe Ala Pro Leu Ile Ala His Gly
 1             5

<210> 32
<211> 8
<212> PRT
<213> Artificial Sequence

```



<220>  
 <223> peptide in m13 coliphage  
 <400> 32  
 Ser Trp Ile Gln Thr Phe Met Gly  
 1 5  
 <210> 33  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
 <220>  
 <223> peptide in m13 coliphage  
 <400> 33  
 Asn Thr Trp Pro His Met Tyr Gly  
 1 5  
 <210> 34  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
 <220>  
 <223> peptide in m13 coliphage  
 <400> 34  
 Glu Pro Leu Pro Thr Thr Leu Gly  
 1 5  
 <210> 35  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
 <220>  
 <223> peptide in m13 coliphage  
 <400> 35  
 His Gly Pro His Leu Phe Asn Gly  
 1 5  
 <210> 36  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
 <220>  
 <223> peptide in m13 coliphage  
 <400> 36  
 Tyr Leu Asn Ser Thr Leu Ala Gly  
 1 5  
 <210> 37  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 37

His Leu His Ser Pro Ser Gly Gly  
1 5

<210> 38

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> DNA insert in M13 coliphage

<400> 38

catacgactg tttatggggc tggt

24

<210> 39

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> random DNA in m13 coliphage

<400> 39

actgagacgc cttatcctac tggt

24

<210> 40

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> random DNA in m13 coliphage

<400> 40

cttactactc cgttttcgtc gggt

24

<210> 41

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> random DNA in m13 coliphage

<400> 41

gggtgtgcctc ttacgatgga tggc

24

<210> 42

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> random DNA in m13 coliphage

```

<400> 42
aaagattccga ctgttctgcg gggt
24
<210> 43
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 43
tggtcgcttcc atgggaatcg tggt
24
<210> 44
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 44
tataactcggg attttgaggc tggt
24
<210> 45
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 45
tcgtcggcgg ctgggtccgc gggt
24
<210> 46
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 46
tctctgattc agtattcgag gggt
24
<210> 47
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> unknown

```

<400> 47

gatgctcttta tgtggcctnt gggt 24

<210> 48  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> random DNA in m13 coliphage

<220>  
 <221> MISC\_FEATURE  
 <222> (8)..(9)  
 <223> unknown

<400> 48

tcgtctcctt cgttgtatat tggt 24

<210> 49  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> random DNA in m13 coliphage

<400> 49

tttaatactt cgacgcgtac gggt 24

<210> 50  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> random DNA in m13 coliphage

<400> 50

actgtgcagc atgttgcttt tggt 24

<210> 51  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> random DNA in m13 coliphage

<400> 51

gattattctt ttccgcctct tggt 24

<210> 52  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> random DNA in m13 coliphage

```

<400> 52

gtgggggtcta tggagtcgtt ggggt
24

<210> 53
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> unknown

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> unknown

<220>
<221> MISC_FEATURE
<222> (18)..(18)
<223> unknown

<400> 53

tttcanccga tgattngntc ggggt
24

<210> 54
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 54

gggcctccgc gggttactat ggggt
24

<210> 55
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 55

attgctacga agacgcctaa ggggt
24

<210> 56
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 56

```

aagcttcctg tgtttcagat tggt	24
<210> 57	
<211> 24	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> random DNA in m13 coliphage	
<400> 57	
tatcatactg ctcataatat gggt	24
<210> 58	
<211> 24	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> random DNA in m13 coliphage	
<400> 58	
tcttatattc aggcctacgca tggt	24
<210> 59	
<211> 24	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> random DNA in m13 coliphage	
<400> 59	
tcgtcttttg ctacttttct tggt	24
<210> 60	
<211> 24	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> random DNA in m13 coliphage	
<400> 60	
acgactccgc cgaattttgc gggt	24
<210> 61	
<211> 24	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> random DNA in m13 coliphage	
<400> 61	
attttctcttg atccgcgtat gggt	24
<210> 62	
<211> 24	

```

<212> RNA
<213> Artificial Sequence

<220>
<223> random RNA in m13 coliphage

<400> 62

tegetgcgcgc tggttggtgc gggt
24

<210> 63
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 63

aatcttcttta agactacgt tggt
24

<210> 64
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 64

gatcagaatc tgccgcggcg gggt
24

<210> 65
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 65

agtcattttg agcagctgct tggt
24

<210> 66
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 66

acgccgcagc ttcacatgg tggt
24

<210> 67
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

```

```

<223> random DNA in m13 coliphage

<400> 67

ggcgctttgg ataggattac gggg                                24

<210> 68
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 68

tttggcgctc ttattggcgca tggg                                24

<210> 69
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 69

tcgtggattt agacgtttat gggg                                24

<210> 70
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 70

aatcttggc ctcatatgta tggg                                24

<210> 71
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 71

gagcctcttc cgactacggt gggg                                24

<210> 72
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 72

```



cataggcctc atctgtttaa tgggt

24

<210> 73

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> random DNA in m13 coliphage

<400> 73

tatctgaatt ctacgcttgc tgggt

24

<210> 74

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 74

catcttcata gtccgtcggg gggt

24

<210> 75

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> random peptide in m13 coliphage

<400> 75

Thr Leu Pro His Arg Leu Asn Gly

1

5

<210> 76

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 76

Ser Ser Pro Arg Glu Val His Gly

1

5

<210> 77

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 77

Asn Gln Val Asp Thr Ala Arg Gly

1

5

<210> 78  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 78

Tyr Pro Thr Pro Leu Leu Thr Gly  
1 5

<210> 79  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 79

His Pro Ala Ala Phe Pro Trp Gly  
1 5

<210> 80  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 80

Leu Leu Pro His Ser Ser Ala Gly  
1 5

<210> 81  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 81

Leu Glu Thr Tyr Thr Ala Ser Gly  
1 5

<210> 82  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 82

Lys Tyr Val Pro Leu Pro Pro Gly  
1 5

<210> 83  
<211> 8  
<212> PPT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 83  
  
Ala Pro Leu Ala Leu His Ala Gly  
1 5

<210> 84  
<211> 8  
<212> PPT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 84  
  
Tyr Glu Ser Leu Leu Thr Lys Gly  
1 5

<210> 85  
<211> 8  
<212> PPT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 85  
  
Ser His Ala Ala Ser Gly Thr Gly  
1 5

<210> 86  
<211> 8  
<212> PPT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 86  
  
Gly Leu Ala Thr Val Lys Ser Gly  
1 5

<210> 87  
<211> 8  
<212> PPT  
<213> Artificial Sequence  
  
<220>  
<223> peptide in m13 coliphage  
  
<400> 87  
  
Gly Ala Thr Ser Phe Gly Leu Gly  
1 5

<210> 88  
<211> 8  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 88

Lys Pro Pro Gly Pro Val Ser Gly  
1 5

<210> 89  
<211> 8  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 89

Thr Leu Tyr Val Ser Gly Asn Gly  
1 5

<210> 90  
<211> 8  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 90

His Ala Pro Phe Lys Ser Gln Gly  
1 5

<210> 91  
<211> 8  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 91

Val Ala Phe Thr Arg Leu Pro Gly  
1 5

<210> 92  
<211> 8  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 92

Leu Pro Thr Arg Thr Pro Ala Gly  
1 5

<210> 93  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 93

Ala Ser Phe Asp Leu Leu Ile Gly  
1 5

<210> 94  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 94

Arg Met Asn Thr Glu Pro Pro Gly  
1 5

<210> 95  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 95

Lys Met Thr Pro Leu Thr Thr Gly  
1 5

<210> 96  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 96

Ala Asn Ala Thr Pro Leu Leu Gly  
1 5

<210> 97  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 97

Thr Ile Trp Pro Pro Pro Val Gly  
1 5

<210> 98  
 <211> 8  
 <212> PFT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <400> 93  
 Gln Thr Lys Val Met Thr Thr Gly  
   1                  5

<210> 99  
 <211> 8  
 <212> PFT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <400> 99  
 Asn His Ala Val Phe Ala Ser Gly  
   1                  5

<210> 100  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (5)..(5)  
 <223> unknown  
  
 <400> 100

Leu His Ala Ala Xaa Thr Ser Gly  
   1                  5

<210> 101  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> peptide in m13 coliphage  
  
 <400> 101

Thr Trp Gln Pro Tyr Phe His Gly  
   1                  5

<210> 102  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> peptide in m13 coliphage

<400> 102

Ala Pro Leu Ala Leu His Ala Gly  
1 5

<210> 103

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 103

Thr Ala His Asp Leu Thr Val Gly  
1 5

<210> 104

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 104

Asn Met Thr Asn Met Leu Thr Gly  
1 5

<210> 105

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 105

Gly Ser Gly Leu Ser Gln Asp Gly  
1 5

<210> 106

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 106

Thr Pro Ile Lys Thr Ile Tyr Gly  
1 5

<210> 107

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

```

<400> 107
Ser His Leu Tyr Arg Ser Ser Gly
1          5

<210> 108
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 108

actctgectc atcgtctgaa tggc
24

<210> 109
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 109

tcgagtcgca gggaggttca tggc
24

<210> 110
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 110

aatcagqttg atacggctcg gqgc
24

<210> 111
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 111

tattctacgc cgctgctgac tggc
24

<210> 112
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 112

catcctgctg cttttccttg gggt
24

```



```

<210> 113
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 113
ctttcttccgc attctagtgc tggc
24

<210> 114
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 114
cttgagactt atacgcttc tggc
24

<210> 115
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 115
aagtatgtgc ctctgccgcc gggt
24

<210> 116
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 116
gcgccgttgg ctctgcatgc gggt
24

<210> 117
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 117
tatgagtcgc tgctgactaa gggt
24

<210> 118
<211> 24
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> random DNA in m13 coliphage

<400> 118

cttcattgagg ctctctgggtac tggc                                24

<210> 119
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 119

gggtttggcga ctgttaagtc tggc                                24

<210> 120
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 120

ggtgctacgt cttttgggct tggc                                24

<210> 121
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 121

aagccgcctg ggccggtgtc gggt                                24

<210> 122
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 122

actctttatg tttctgggaa tggc                                24

<210> 123
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 123

```

catgctccgt ttaagtctca ggggt 24

<210> 124  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 124

gtggcgttta cgcggttcc ggggt 24

<210> 125  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 125

ctgccgactg ctacgccggc tggt 24

<210> 126  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 126

gcgagttttg atcttttgat tggt 24

<210> 127  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 127

cggatgaata ctgagcctcc ggggt 24

<210> 128  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 128

aagatgactc ctctgacgac tggt 24

<210> 129  
<211> 24

```

<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 129

gggaatgga cgcctctgct gggt
24

<210> 130
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 130

actatttggc ctccgctgt tggt
24

<210> 131
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 131

cagactaagg tgatgacgac gggt
24

<210> 132
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<400> 132

aatcatgctg tttttgctag tggt
24

<210> 133
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> random DNA in m13 coliphage

<220>
<221> MISC_FEATURE
<222> (13)..(13)
<223> unknown

<400> 133

ctgcatgcgg ctantacgtc gggt
24

<210> 134

```

<211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> random DNA in m13 coliphage  
  
 <400> 134  
  
 acgtggcagc cgtattttca tggt 24  
  
 <210> 135  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> random DNA in m13 coliphage  
  
 <400> 135  
  
 ggccggttgg ctctgcatgc gggt 24  
  
 <210> 136  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> random DNA in m13 coliphage  
  
 <400> 136  
  
 acggcgcgatg atctgactgt tggt 24  
  
 <210> 137  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> random DNA in m13 coliphage  
  
 <400> 137  
  
 aatatgacta atatgcttac tggt 24  
  
 <210> 138  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> random DNA in m13 coliphage  
  
 <400> 138  
  
 ggttctgggc tgtctcagga tggt 24  
  
 <210> 139  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 139

agggcgatta agacgattta tggt

24

<210> 140  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 140

tcgcacatctgt atcggttctag tggt

24

<210> 141  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Random peptides in coliphage M13

<400> 141

Ser Ile Ile Asn Phe Glu Lys Leu  
1 5

<210> 142  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 142

Gly Gly Gly Ser  
1

<210> 143  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 143

His Trp Asp Phe Ala Trp Pro Trp  
1 5

<210> 144  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>

```

    <223> peptide in m13 coliphage

    <400> 144

Phe Trp Gly Leu Trp Pro Trp Glu
  1                      5

    <210> 145
    <211> 5
    <212> PRT
    <213> Artificial Sequence

    <220>
    <223> peptide in m13 coliphage

    <400> 145

Gln Lys Arg Ala Ala
  1                      5

    <210> 146
    <211> 5
    <212> PRT
    <213> Artificial Sequence

    <220>
    <223> peptide in m13 coliphage

    <400> 146

Arg Arg Arg Ala Ala
  1                      5

    <210> 147
    <211> 5
    <212> PRT
    <213> Artificial Sequence

    <220>
    <223> peptide in m13 coliphage

    <400> 147

Lys Phe Glu Arg Gln
  1                      5

    <210> 148
    <211> 8
    <212> PRT
    <213> Artificial Sequence

    <220>
    <223> peptide in m13 coliphage

    <400> 148

Arg Gly Tyr Val Tyr Gln Gly Leu
  1                      5

    <210> 149
    <211> 7
    <212> PRT
    <213> Artificial Sequence

```

<220>  
<223> peptide in m13 coliphage  
<400> 149

Tyr Thr Leu Val Gln Pro Leu  
1 5

<210> 150  
<211> 7  
<212> PFT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 150

Thr Pro Asp Ile Thr Pro Lys  
1 5

<210> 151  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 151

Thr Tyr Pro Asp Leu Arg Tyr  
1 5

<210> 152  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 152

Asp Arg Thr His Ala Thr Ser  
1 5

<210> 153  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 153

Met Ser Thr Thr Phe Tyr Ser  
1 5

<210> 154  
<211> 7  
<212> PRT  
<213> Artificial Sequence



<220>  
<223> peptide in m13 coliphage

<400> 154

Tyr Gln His Ala Val Gln Thr  
1 5

<210> 155  
<211> 7  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 155

Phe Pro Phe Ser Ala Ser Thr  
1 5

<210> 156  
<211> 7  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 156

Ser Ser Phe Pro Pro Leu Asp  
1 5

<210> 157  
<211> 7  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 157

Met Ala Pro Ser Pro Pro His  
1 5

<210> 158  
<211> 7  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 158

Ser Ser Phe Pro Asp Leu Leu  
1 5

<210> 159  
<211> 7  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 159

His Ser Tyr Asn Arg Leu Pro  
1 5

<210> 160  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 160

His Leu Thr His Ser Gln Arg  
1 5

<210> 161  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 161

Gln Ala Ala Gln Ser Arg Ser  
1 5

<210> 162  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 162

Phe Ala Thr His His Ile Gly  
1 5

<210> 163  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 163

Ser Met Pro Glu Pro Leu Ile  
1 5

<210> 164  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 164

Ile Pro Arg Tyr His Leu Ile  
1 5

<210> 165  
<211> 7  
<212> PPT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 165

Ser Ala Pro His Met Thr Ser  
1 5

<210> 166  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 166

Lys Ala Pro Val Trp Ala Ser  
1 5

<210> 167  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 167

Leu Pro His Trp Leu Leu Ile  
1 5

<210> 168  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 168

Ala Ser Ala Gly Tyr Gln Ile  
1 5

<210> 169  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 169

Val Thr Pro Lys Thr Gly Ser  
1 5

<210> 170  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 170

Glu His Pro Met Pro Val Leu  
1 5

<210> 171  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 171

Val Ser Ser Phe Val Thr Ser  
1 5

<210> 172  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 172

Ser Thr His Phe Thr Trp Pro  
1 5

<210> 173  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 173

Gly Gln Trp Trp Ser Pro Asp  
1 5

<210> 174  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 174

Gly Pro Pro His Gln Asp Ser  
1 5

<210> 175  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 175

Asn Thr Leu Pro Ser Thr Ile  
1 5

<210> 176  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 176

His Gln Pro Ser Arg Trp Val  
1 5

<210> 177  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 177

Tyr Gly Asn Pro Leu Gln Pro  
1 5

<210> 178  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 178

Phe His Trp Trp Trp Gln Pro  
1 5

<210> 179  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 189

Ile Thr Leu Lys Tyr Pro Leu  
1 5

<210> 180

<211> 7

<212> PFT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 180

Phe His Trp Pro Trp Leu Phe  
1 5

<210> 181

<211> 7

<212> PFT

<213> Artificial Sequence

<220>

<223> Random peptide in coliphage M13

<400> 181

Thr Ala Gln Asp Ser Thr Gly  
1 5

<210> 182

<211> 7

<212> PFT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 182

Phe His Trp Trp Trp Gln Pro  
1 5

<210> 183

<211> 7

<212> PFT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 183

Phe His Trp Trp Asp Trp Trp  
1 5

<210> 184

<211> 7

<212> PFT

<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 184

Glu Pro Phe Phe Arg Met Gln  
1 5

<210> 185  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 185

Thr Trp Trp Leu Asn Tyr Arg  
1 5

<210> 186  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 186

Phe His Trp Trp Trp Gln Pro  
1 5

<210> 187  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 187

Gln Pro Ser His Leu Arg Trp  
1 5

<210> 188  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 188

Ser Pro Ala Ser Pro Val Tyr  
1 5

<210> 189  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 189

Phe His Trp Trp Trp Gln Pro  
1 5

<210> 190  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 190

His Pro Ser Asn Gln Ala Ser  
1 5

<210> 191  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 191

Asn Ser Ala Pro Arg Pro Val  
1 5

<210> 192  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 192

Gln Leu Trp Ser Ile Tyr Pro  
1 5

<210> 193  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 193

Ser Trp Pro Phe Phe Asp Leu  
1 5

<210> 194  
<211> 7  
<212> PRT  
<213> Artificial Sequence



<210>  
<223> peptide in m13 coliphage  
<400> 194

Asp Thr Thr Leu Pro Leu His  
1 5

<210> 195  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 195

Trp His Trp Gln Met Leu Trp  
1 5

<210> 196  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 196

Asp Ser Phe Arg Thr Pro Val  
1 5

<210> 197  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 197

Thr Ser Pro Leu Ser Leu Leu  
1 5

<210> 198  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 198

Ala Tyr Asn Tyr Val Ser Asp  
1 5

<210> 199  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<210>  
<223> peptide in m13 coliphage

<400> 199

Arg Pro Leu His Asp Pro Met  
1 5

<210> 200  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 200

Trp Pro Ser Thr Thr Leu Phe  
1 5

<210> 201  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 201

Ala Thr Leu Glu Pro Val Arg  
1 5

<210> 202  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 202

Ser Met Thr Val Leu Arg Pro  
1 5

<210> 203  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 203

Gln Ile Gly Ala Pro Ser Trp  
1 5

<210> 204  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 204

Ala Pro Asp Leu Tyr Val Pro  
1 5

<210> 205  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 205

Arg Met Pro Pro Leu Leu Pro  
1 5

<210> 206  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 206

Ala Lys Ala Thr Pro Glu His  
1 5

<210> 207  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 207

Thr Pro Pro Leu Arg Ile Asn  
1 5

<210> 208  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 208

Leu Pro Ile His Ala Pro His  
1 5

<210> 209  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 209

Asp Leu Asn Ala Tyr Thr His  
1 5

<210> 210  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 210

Val Thr Leu Pro Asn Phe His  
1 5

<210> 211  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 211

Asn Ser Arg Leu Pro Thr Leu  
1 5

<210> 212  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 212

Tyr Pro His Pro Ser Arg Ser  
1 5

<210> 213  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 213

Gly Thr Ala His Phe Met Tyr  
1 5

<210> 214  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 214

Tyr Ser Leu Leu Pro Thr Arg  
1 5

<210> 215  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 215

Leu Pro Arg Arg Thr Leu Leu  
1 5

<210> 216  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 216

Thr Ser Thr Leu Leu Trp Lys  
1 5

<210> 217  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 217

Thr Ser Asp Met Lys Pro His  
1 5

<210> 218  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 218

Thr Ser Ser Tyr Leu Ala Leu  
1 5

<210> 219  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 219

Asn Leu Tyr Gly Pro His Asp  
1 5

<210> 220  
<211> 7  
<212> PFT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 220

Leu Glu Thr Tyr Thr Ala Ser  
1 5

<210> 221  
<211> 7  
<212> PFT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 221

Ala Tyr Lys Ser Leu Thr Gln  
1 5

<210> 222  
<211> 7  
<212> PFT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 222

Ser Thr Ser Val Tyr Ser Ser  
1 5

<210> 223  
<211> 7  
<212> PFT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 223

Glu Gly Pro Leu Arg Ser Pro  
1 5

<210> 224  
<211> 7  
<212> PFT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 224

Thr Thr Tyr His Ala Leu Gly  
1 5

<210> 225

<211> 7

<212> PPT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 225

Val Ser Ile Gly His Pro Ser  
1 5

<210> 226

<211> 7

<212> PPT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 226

Thr His Ser His Arg Pro Ser  
1 5

<210> 227

<211> 7

<212> PPT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 227

Ile Thr Asn Pro Leu Thr Thr  
1 5

<210> 228

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 228

Ser Ile Gln Ala His His Ser  
1 5

<210> 229

<211> 7

<212> PRT

<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 229

Leu Asn Trp Pro Arg Val Leu  
1 5

<210> 230  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 230

Tyr Tyr Tyr Ala Pro Pro Pro  
1 5

<210> 231  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 231

Ser Leu Trp Thr Arg Leu Pro  
1 5

<210> 232  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 232

Asn Val Tyr His Ser Ser Leu  
1 5

<210> 233  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 233

Asn Ser Pro His Pro Pro Thr  
1 5

<210> 234  
<211> 7  
<212> PRT  
<213> Artificial Sequence



<220>  
<223> peptide in m13 coliphage

<400> 234

Val Pro Ala Lys Pro Arg His  
1 5

<210> 235  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 235

His Asn Leu His Pro Asn Arg  
1 5

<210> 236  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 236

Tyr Thr Thr His Arg Trp Leu  
1 5

<210> 237  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 237

Ala Val Thr Ala Ala Ile Val  
1 5

<210> 238  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 238

Thr Leu Met His Asp Arg Val  
1 5

<210> 239  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 239

Thr Pro Leu Lys Val Pro Tyr  
1 5

<210> 240  
<211> 7  
<212> PET  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 240

Phe Thr Asn Gln Gln Tyr His  
1 5

<210> 241  
<211> 7  
<212> PET  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 241

Ser His Val Pro Ser Met Ala  
1 5

<210> 242  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 242

His Thr Thr Val Tyr Gly Ala  
1 5

<210> 243  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 243

Thr Glu Thr Pro Tyr Pro Thr  
1 5

<210> 244  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 244

Leu Thr Thr Pro Phe Ser Ser  
1 5

<210> 245  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 245

Gly Val Pro Leu Thr Met Asp  
1 5

<210> 246  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 246

Lys Leu Pro Thr Val Leu Arg  
1 5

<210> 247  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 247

Cys Arg Phe His Gly Asn Arg  
1 5

<210> 248  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 248

Tyr Thr Arg Asp Phe Glu Ala  
1 5

<210> 249  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<221>  
<222> peptide in m13 coliphage  
  
<400> 149

Ser Ser Ala Ala Gly Pro Arg  
1 5

<210> 250  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<222> peptide in m13 coliphage  
  
<400> 250

Ser Leu Ile Gln Tyr Ser Arg  
1 5

<210> 251  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<222> peptide in m13 coliphage

<220>  
<221> MISC\_FEATURE  
<222> (7)..(7)  
<223> unknown

<400> 251

Asp Ala Leu Met Trp Pro Xaa  
1 5

<210> 252  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<222> peptide in m13 coliphage

<220>  
<221> MISC\_FEATURE  
<222> (3)..(3)  
<223> unknown

<400> 252

Ser Ser Xaa Ser Leu Tyr Ile  
1 5

<210> 253  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<222> peptide in m13 coliphage

<400> 253

Phe Asn Thr Ser Thr Arg Thr  
1 5

<210> 254

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 254

Thr Val Gln His Val Ala Phe  
1 5

<210> 255

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 255

Asp Tyr Ser Phe Pro Pro Leu  
1 5

<210> 256

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 256

Val Gly Ser Met Glu Ser Leu  
1 5

<210> 257

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<220>

<221> MISC\_FEATURE

<222> (2)..(2)

<223> unknown

<220>

<221> MISC\_FEATURE

<222> (6)..(6)

<223> unknown

<400> 257

Phe Xaa Pro Met Ile Xaa Ser  
1 5

<210> 258

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 258

Ala Pro Pro Arg Val Thr Met  
1 5

<210> 259

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 259

Ile Ala Thr Lys Thr Pro Lys  
1 5

<210> 260

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 260

Lys Pro Pro Leu Phe Gln Ile  
1 5

<210> 261

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 261

Tyr His Thr Ala His Asn Met  
1 5

<210> 262

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 262

Ser Tyr Ile Gln Ala Thr His  
1 5

<210> 263

<211> 7

<212> PFT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 263

Ser Ser Phe Ala Thr Phe Leu  
1 5

<210> 264

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 264

Thr Thr Pro Pro Asn Phe Ala  
1 5

<210> 265

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 265

Ile Ser Leu Asp Pro Arg Met  
1 5

<210> 266

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 266

Ser Leu Pro Leu Phe Gly Ala  
1 5

<210> 267

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 267

Asn Leu Leu Lys Thr Thr Leu  
1 5

<210> 268

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 268

Asp Gln Asn Leu Pro Arg Arg  
1 5

<210> 269

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 269

Ser His Phe Glu Gln Leu Leu  
1 5

<210> 270

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 270

Thr Pro Gln Leu His His Gly  
1 5

<210> 271

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 271

Ala Pro Leu Asp Arg Ile Thr  
1 5

<210> 272

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 272



Phe Ala Pro Leu Ile Ala His  
1 5

<210> 273

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 273

Ser Trp Ile Gln Thr Phe Met  
1 5

<210> 274

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 274

Asn Thr Trp Pro His Met Tyr  
1 5

<210> 275

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 275

Glu Pro Leu Pro Thr Thr Leu  
1 5

<210> 276

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 276

His Gly Pro His Leu Phe Asn  
1 5

<210> 277

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 277

Thr Leu Asn Ser Thr Leu Ala  
1 5

<210> 278

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 278

His Leu His Ser Pro Ser Gly  
1 5

<210> 279

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 279

Thr Leu Pro His Arg Leu Asn  
1 5

<210> 280

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 280

Ser Ser Pro Arg Glu Val His  
1 5

<210> 281

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 281

Asn Gln Val Asp Thr Ala Arg  
1 5

<210> 282

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 282

Tyr Pro Thr Pro Leu Leu Thr  
1 5

<210> 283

<211> 7

<212> PFT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 283

His Pro Ala Ala Phe Pro Trp  
1 5

<210> 284

<211> 7

<212> PFT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 284

Leu Leu Pro His Ser Ser Ala  
1 5

<210> 285

<211> 7

<212> PFT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 285

Leu Glu Thr Tyr Thr Ala Ser  
1 5

<210> 286

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 286

Lys Tyr Val Pro Leu Pro Pro  
1 5

<210> 287

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 287

Ala Pro Leu Ala Leu His Ala  
1 5

<210> 288  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Pandom peptide in coliphage M13

<400> 288

Tyr Glu Ser Leu Leu Thr Lys  
1 5

<210> 289  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 289

Ser His Ala Ala Ser Gly Thr  
1 5

<210> 290  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 290

Gly Leu Ala Thr Val Lys Ser  
1 5

<210> 291  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 291

Gly Ala Thr Ser Phe Gly Leu  
1 5

<210> 292  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage

<400> 292

Lys Pro Pro Gly Pro Val Ser  
1 5

<210> 293

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 293

Thr Leu Tyr Val Ser Gly Asn  
1 5

<210> 294

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 294

His Ala Pro Phe Lys Ser Gln  
1 5

<210> 295

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 295

Val Ala Phe Thr Arg Leu Pro  
1 5

<210> 296

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 296

Leu Pro Thr Arg Thr Pro Ala  
1 5

<210> 297

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 297

Ala Ser Phe Asp Leu Leu Ile  
1 5

<210> 298

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 298

Arg Met Asn Thr Glu Pro Pro  
1 5

<210> 299

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 299

Lys Met Thr Pro Leu Thr Thr  
1 5

<210> 300

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 300

Ala Asn Ala Thr Pro Leu Leu  
1 5

<210> 301

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 301

Thr Ile Trp Pro Pro Pro Val  
1 5

<210> 302

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 302

Gln Thr Lys Val Met Thr Thr  
1 5

<210> 303

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 303

Asn His Ala Val Phe Ala Ser  
1 5

<210> 304

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<220>

<221> MISC FEATURE

<222> (5)..(5)

<223> unknown

<400> 304

Leu His Ala Ala Xaa Thr Ser  
1 5

<210> 305

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 305

Thr Trp Gln Pro Tyr Phe His  
1 5

<210> 306

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide in m13 coliphage

<400> 306

Ala Pro Leu Ala Leu His Ala  
1 5

<210> 307

<211> 7

<212> PRT

<213> Artificial Sequence

```

<220>
<223> peptide in m13 coliphage

<400> 307

Thr Ala His Asp Leu Thr Val
  1                      5

<210> 308
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 308

Asn Met Thr Asn Met Leu Thr
  1                      5

<210> 309
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 309

Gly Ser Gly Leu Ser Gln Asp
  1                      5

<210> 310
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 310

Thr Pro Ile Lys Thr Ile Tyr
  1                      5

<210> 311
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide in m13 coliphage

<400> 311

Ser His Leu Tyr Arg Ser Ser
  1                      5

<210> 312
<211> 7
<212> PRT
<213> Artificial Sequence

```



<220>  
 <223> peptide in m13 coliphage  
  
 <400> 312  
  
 His Gly Gln Ala Trp Gln Phe  
   1                  5  
  
 <210> 313  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <400> 313  
  
 Leu Leu Leu Gly Thr Leu Asn Ile Val  
   1                  5  
  
 <210> 314  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <400> 314  
  
 Leu Leu Met Gly Thr Leu Gly Ile Val  
   1                  5  
  
 <210> 315  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <400> 315  
  
 Thr Leu Gln Asp Ile Val Leu His Leu  
   1                  5  
  
 <210> 316  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> peptide in m13 coliphage  
  
 <400> 316  
  
 Gly Leu His Cys Tyr Glu Gln Leu Val  
   1                  5  
  
 <210> 317  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence

<220>  
<223> peptide in m13 coliphage  
<400> 317

Pro Leu Lys Gln His Phe Gln Ile Val  
1 5

<210> 318  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 318

agatatacat atggatgatg aagtcgacgt gg

32

<210> 319  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> random DNA in m13 coliphage

<400> 319

tccgatacctt acaatttcate cttctctgta gattc

35

<210> 320  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Random peptide in coliphage M13

<400> 320

Phe His Trp Trp Trp  
1 5

<210> 321  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> hybrid peptide

<400> 321

Ser Ile Ile Asn Phe Glu Lys Leu Gly Ser Gly His Trp Asp Phe Ala  
1 5 10 15

Trp Pro Trp  
19